

## PATENT ABSTRACTS OF JAPAN

(11)Publication number : 02-119031

(43)Date of publication of application : 07.05.1990

(51)Int.Cl.

H01J 11/00

(21)Application number : 63-271222

(71)Applicant : MITSUBISHI ELECTRIC CORP

(22)Date of filing : 27.10.1988

(72)Inventor : SANO KO

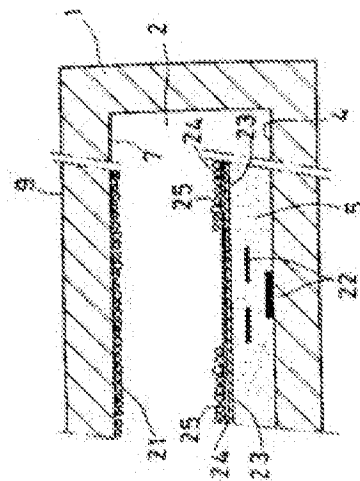
KAJIWARA TOSHIRO  
KOBAYASHI GOROKU  
FUKUYAMA KEIJI  
YANO YOUJIROU  
URAKABE TAKAHIRO

### (54) DISPLAY ELEMENT

#### (57)Abstract:

PURPOSE: To enlarge the area of a phosphor so as to obtain a display element having high brightness, by forming a SiO<sub>2</sub> layer having excellent adhesion to the phosphor on a protective layer.

CONSTITUTION: A first phosphor layer 21 is formed on one-side inner wall 7 of a receptacle having discharge gas 2 charged therein, and then plural discharging electrodes 22 are formed in the shape of a matrix on the other-side inner wall 4 for being embedded by an insulating layer 5. The insulating layer 5 is covered with an electrode protection oxide film 23 made of a secondary electron emitting material, MgO or Y<sub>2</sub>O<sub>3</sub> for allowing the oxide film to contribute to the maintenance of electric discharge, and then a second phosphor layer 25 is deposited and formed above the oxide film via a SiO<sub>2</sub> layer 24 having its thickness of 500 angstrom or so. Each voltage is applied to each of the electrodes 22 to cause electric discharge in the discharge gas 2 above each of intersecting points of the electrode matrix. Each output light from the second phosphor layer 25 is synthesized with each output



light from the first phosphor layer 21 so that the synthesized light reaches a luminous plane 9 to raise the brightness of the element in the title.